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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,132	01/11/2002	Kurt Alan Rubin	ARC919990196US1	5831
35987	7590	07/13/2004	EXAMINER	
JOSEPH P. CURTIN 1469 N.W. MORGAN LANE PORTLAND, OR 97229			FIGUEROA, NATALIA	
			ART UNIT	PAPER NUMBER
			2651	

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/042,132

Applicant(s)

RUBIN ET AL.

Examiner

Natalia Figueroa

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2004 (amendment).
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-6, 11-15, 17-19, 23, 25 and 26 is/are rejected.
7) ☒ Claim(s) 7-10, 16, 20-22, and 24 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 2 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Sidman (USPN 5,247,398).

Regarding claim 1, Sidman discloses an information recording system, comprising a storage medium having a plurality of adjacent tracks (col. 1, lines 30-34), each of the adjacent tracks include a plurality of storage elements that are arranged substantially along each respective track in substantially a regular manner (col. 1, lines 34-40); and a head disposed in proximity to the storage medium and having a width that substantially spans at least two adjacent tracks (col. 6, lines 20-22).

Regarding claim 2, Sidman further discloses that the storage medium is a magnetic storage medium, and the head is a magnetic head (col. 4, lines 33-42).

Regarding claim 23, Sidman further discloses that the head reads information from at least two adjacent tracks spanned by the head (col. 6, lines 20-22).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 3-6, 14, 17 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sidman in view of Rubin et al (USPN 6,421,195).

Regarding claim 3, Sidman fails to teach that each track is located substantially in a plane within the storage medium, and wherein at least one storage element is a magnetic domain storage element that is substantially perpendicular to the plane in which the track in which the storage element is arranged is substantially located.

However, Rubin et al disclose such on (col. 7, lines 21-25). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus as disclosed by Sidman with the above teachings of Rubin et al the motivation being selecting a magnetization orientation that provides the most data capacity in the data storage system, hence the increase of density.

Regarding claim 4, Sidman fails to teach that each track is located substantially in a plane within the storage medium, and wherein at least one storage element is a magnetic domain storage element that is substantially parallel to the plane in which the

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track in which the storage element is substantially located. However, Rubin et al disclose such on (col. 7, lines 19-20).

Regarding claim 5, Sidman fails to teach that at least a portion of the magnetic storage medium is patterned. However, Rubin et al disclose such on (col. 8, lines 39-40).

Regarding claim 6, Sidman fails to teach that the magnetic storage medium is a perpendicular magnetic storage medium. However, Rubin et al disclose such on (col. 4, lines 40-42).

Regarding claim 14, Sidman fails to teach that the magnetic storage medium is a magnetic disk. However, Rubin et al disclose such on (abstract, col. 1, line 11).

Regarding claim 17, Sidman fails to teach that the information recording system is part of a magnetic medium disk drive. However, Rubin et al disclose such on (abstract, col. 1, line 11).

Regarding claim 26, Sidman fails to teach that the plurality of adjacent tracks is formed by a plurality of concentric tracks. However, Rubin et al disclose such on (fig. 3, 61 and disclosure thereof).

3. Claims 11-12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sidman and Rubin et al and further in view of Hamann et al (USPN 6,233,206).

Regarding claims 11, 12 and 13: Sidman and Rubin et al fail to teach that the magnetic storage medium has an areal density of at least about 64 Gbit/in², 128 Gbit/in², and 256 Gbit/in².

However, Hamann et al disclose such on (fig. 7 and disclosure thereof, col. 8, lines 36-43). Therefore, it would have been obvious to one having ordinary skill in the

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art at the time the invention was made to modify the apparatus as disclosed by Sidman and Rubin et al with the above teachings from Hamann et al to include a magnetic structure with the necessary areal density hence providing a correct head to bit match.

4. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sidman and Rubin et al and further in view of Clifford, Jr. (USPN 5,276,566).

Regarding claim 15, Sidman and Rubin et al. fail to teach that the magnetic storage medium is a magnetic tape.

However, Clifford, Jr. discloses such on (fig. 1, col. 1, lines 21-23). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus as disclosed by Sidman and Rubin et al with the above teachings from Clifford, Jr. the motivation being that one skilled in the art would be motivated to experiment, within the scope of the art, with different storage mediums (e.g. tape, disk).

5. Claims 18-19 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sidman and Rubin et al and further in view of Mallary (USPN 6,430,123).

Regarding claim 18: Sidman and Rubin et al fail to explicitly teach that the storage medium is an optical storage medium, and that the head is an optical head.

However, Mallary discloses such on (abstract, col. 1, lines 8-16). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus as disclosed by Sidman and Rubin et al with the above teachings from Mallary to have the means for an optical medium hence providing a system that can be matched to the users specifications.

Regarding claim 19: Sidman and Rubin et al are relied upon for the same reasons of rejection as stated above. Mallery further discloses that at least a portion of the optical storage medium is patterned (figs. 1-6, col. 3, lines 3-4 and 27-33).

Regarding claim 25: Sidman and Rubin et al are relied upon for the same reasons of rejection as stated above. Mallery further discloses that the plurality of adjacent tracks is formed by a plurality of concentric tracks (fig. 2, col. 3, lines 30-31).

Allowable Subject Matter

6. Claims 7-10, 16, 20-22 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 7 and 20; the prior art of record, and in particular Rubin et al (USPN 5,410,439), fails to teach or suggest an information recording system that each track has an associated along-track direction, wherein the storage elements are further arranged substantially along first and second axes, the first axis being substantially perpendicular to the second axis, and wherein the first and second axes are each locally substantially 45° from the respective along-track directions of the tracks.

Response to Arguments

7. Applicant's arguments, see page 2-4, filed 29 April 2004, with respect to the rejections of claims 1-6, 10-19, 23-25 and 26 under 35 U.S.C. 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, new grounds of rejection are made.

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Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalia Figueroa whose telephone number is (703) 305-1260. The examiner can normally be reached on Monday - Thursday 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Hudspeth can be reached on (703) 308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ARM
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